



# **Appendix A, Attachment A Assumptions for CVP and PG&E Water Supply Conditions**

**March 2005**

## ATTACHMENT A: ASSUMPTIONS FOR CVP AND PG&E WATER SUPPLY CONDITIONS

To provide a comprehensive perspective on available water supply for the Needs Assessment, averages by Water Forum year type of deliveries from CVP and PG&E were factored into the comparison of water demand and supply. The information on average deliveries was obtained through the CALSIM II Benchmark Study<sup>1</sup> and Bear River HEC-3 Model.<sup>2</sup> Note that these modeling studies were not developed specifically for the SRWRS, but provide reasonable indicators of the reliability of these sources of water in the Needs Assessment.

WFA stipulates the limitations on diversions from the American River by year type, which is also defined in the agreement based on hydrologic conditions in the American River Basin. The hydrologic conditions in the Sacramento River Basin (a major water source for CVP) or Yuba River Basin (where PG&E water originates) are not necessarily synchronized with that in the American River.

**Table A-A1. American River Basin Water Year Types Defined in the WFA**

Water Forum Year Type	Unimpaired Inflow to Folsom Lake, March – November (AF)	Percentage of Total Years in the Period of 1901 through 2002 <sup>[1]</sup>
Wet	Greater than 1,600,000	63 out of 102 years (62%)
Average	Greater than 950,000 and less than 1,600,000	25 out of 102 years (24%)
Drier	Greater than 400,000 and less than 950,000	12 out of 102 years (12%)
Driest	Less than 400,000	2 out of 102 years <sup>[2]</sup> (2%)

<sup>[1]</sup> Data source: California Data Exchange Center (CDEC).

<sup>[2]</sup> These two years are 1924 and 1977.

### ASSUMED RELIABILITY OF CENTRAL VALLEY PROJECT WATER SUPPLY

CALSIM II is a monthly planning model developed by DWR and Reclamation to simulate the operations of CVP and SWP. Due to its status of continuous development, DWR and Reclamation release revisions on the Benchmark Study on a regular basis. The average CVP deliveries for north-of-Delta M&I use by Water Forum year type simulated in the CALSIM II Benchmark Study are shown in Table A.A2. Figure A.A1 shows the comparison of March-through-November American River unimpaired flow to Folsom Lake.

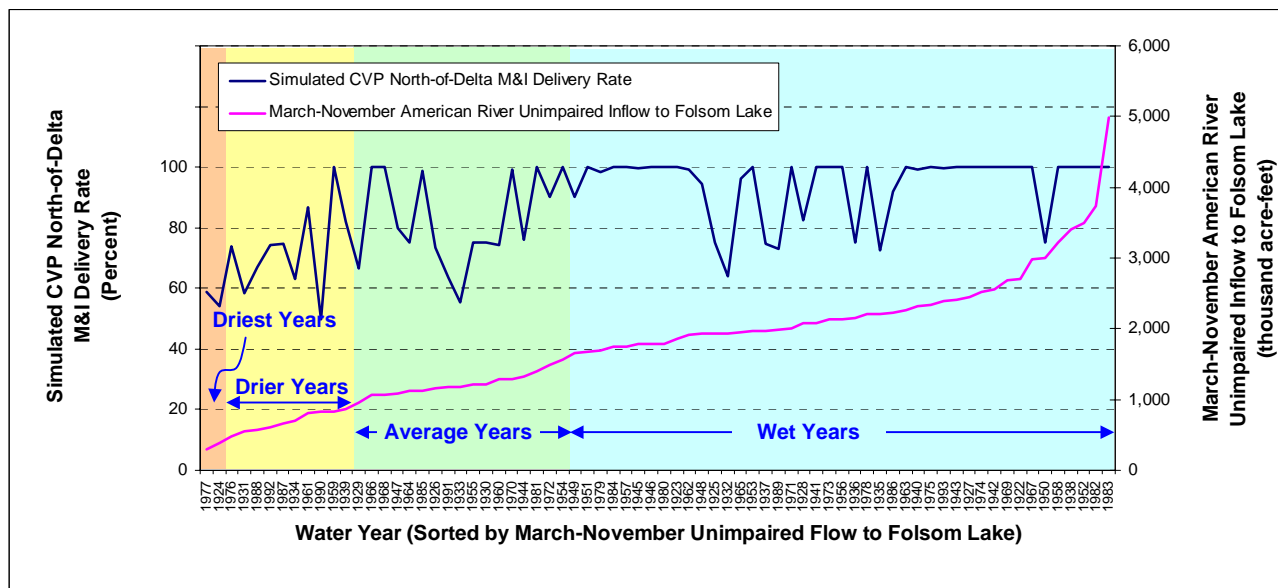
**Table A-A2 Average CVP Delivery Rate for North-of-Delta M&I Use Based on CALSIM Benchmark Study**

Water Forum Year Type	Simulated Average CVP Delivery Rate for North-of-Delta M&I Use <sup>[1],[2]</sup>
Wet	94%
Average	83%
Drier	75%
Driest	57%

<sup>1</sup> CALSIM II Benchmark Study for 2030 level of development is not currently available and thus, the results from simulations of 2020 level of development were used as surrogates.

<sup>2</sup> Central Valley Future Water Supplies for Use in DWRSIM (DWR, 1995).

**Figure A-A1 Comparison of Simulated CVP North-of-Delta M&I Delivery Rate and March-Through-November Unimpaired Flow of the American River to Folsom Lake**



Data Sources: Unimpaired flows from CDEC; CVP delivery rates from CALSIM II Benchmark Study for 2020 level of development, dated September 2002.

## ASSUMED RELIABILITY OF PG&E WATER SUPPLY TO PCWA

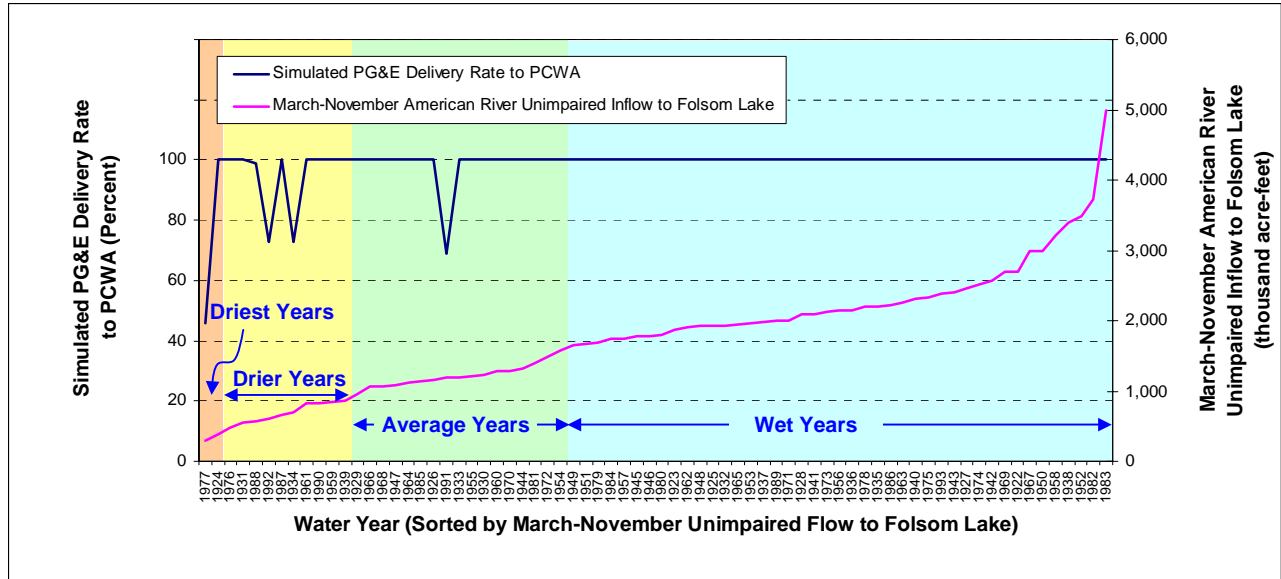
The DWR Bear River HEC-3 model, which was developed by DWR to generate inputs for DWRSIM (one of the predecessors of CALSIM II), includes the Drum-Spaulding Canal system. Based on simulated diversions for the Drum-Spaulding Canal System, average PG&E delivery rates<sup>3</sup> by Water Forum year type are shown in Table A.A3. A 2020 level of development was assumed in the model simulation. Figure A.A2 shows the comparison of March-through-November American River unimpaired flow to Folsom Lake and the corresponding PG&E delivery rate to PCWA simulated by DWR Bear River model.

**Table A-A3 Average PG&E Delivery Rate to PCWA Based on DWR Bear River Model**

Water Forum Year Type	Simulated Average PG&E Delivery Rate <sup>[1],[2]</sup>
Wet	100%
Average	98%
Drier	95%
Driest	73%

<sup>3</sup> Note that the delivery to PCWA is not explicitly modeled. The delivery rate is approximated by comparing the PCWA total contract entitlement of 100,400 AF per year to the 50 percent of the simulated Bear River Canal diversion. It is assumed that other half of the Bear River Canal diversion is used by Nevada Irrigation District.

**Figure A-A4 Comparison of Simulated PG&E Delivery Rate to PCWA and March-Through-November Unimpaired Flow of the American River to Folsom Lake**



Data Sources: Unimpaired flows from CDEC; PG&E delivery rates from DWR Bear River Model for 2020 level of development.

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